

## Plugging the Plug Load Data Hole

### Plug Loads Spreadsheet

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Plug load research reports often use different labels for the same energy-use modes. We define three device modes: *Active*, in which the device is intended (for example, a user is channel-surfing on the TV); *Idle*, in which the device is turned on but is in a low sleep mode; and *Off*, in which the device is turned off but is still drawing some power (for example, a DVD player from a remote control). Questions: [brian.sloboda@nreca.coop](mailto:brian.sloboda@nreca.coop)

Plug load devices, by type	Power draw (W) by mode		
	Active	Idle	Off
<b>Audio equipment</b>			
CD player	6.7	—	1.3
Clock radio	10.0	—	3.0
MP3 player	1.0	—	—
Portable stereo (boom box)	7.0	—	—
Small stereo with remote	24.0	—	6.0
Stereo	60.0	—	—
<b>Home automation and security</b>			
Garage door opener	108.0	—	4.8
Security system	13.7	—	—
Smoke detector (hardwired)	1.0	—	—
<b>Home office equipment</b>			
Color copier (1–49 images per minute)	—	—	—
Color copier (1–49 images per minute), Energy Star	—	—	—
Color copier (50+ images per minute)	—	—	—
Color copier (50+ images per minute), Energy Star	—	—	—
Copier (1–25 images per minute)	—	—	—
Copier (1–25 images per minute), Energy Star	—	—	—
Copier (26–50 images per minute)	—	—	—
Copier (26–50 images per minute), Energy Star	—	—	—
Copier (51+ images per minute)	—	—	—
Copier (51+ images per minute), Energy Star	—	—	—
Decorative fountain (desktop)	2.0	—	—
Desktop computer	68.8	3.4	1.7
Desktop computer, Energy Star	46.2	2.5	1.5
Digital photo frame, 7-inch	0.6	—	—
External computer speakers	7.0	—	2.0
Fax (inkjet)	—	—	—
Fax (inkjet), Energy Star	—	—	—
Fax (laser)	—	—	—
Fax (laser), Energy Star	—	—	—
Laptop computer	20.9	1.6	1.0
Laptop computer, Energy Star	14.1	1.4	0.8
Modem (cable)	6.0	—	—
Modem (DSL)	5.6	—	—
Monitor	32.2	0.7	0.7
Monitor, Energy Star	25.2	0.7	0.6
Multifunction device (inkjet)	—	—	—

Multifunction device (inkjet), Energy Star	—	—	—
Multifunction device (laser, color)	—	—	—
Multifunction device (laser, color), Energy Star	—	—	—
Multifunction device (laser, monochrome)	—	—	—
Multifunction device (laser, monochrome), Energy Star	—	—	—
Printer (inkjet)	—	—	—
Printer (inkjet), Energy Star	—	—	—
Printer (laser)	—	—	—
Printer (laser), Energy Star	—	—	—
Scanner	—	—	—
Wireless router	6.2	1.7	—
<b>Kitchen equipment</b>			
Blender	300.0	—	—
Can opener	100.0	—	—
Coffee machine	1100.0	—	—
Cooktop	—	—	—
Dishwasher (excluding hot water)	362.0	—	—
Dishwasher (excluding hot water), Energy Star	278.1	—	—
Dishwasher (including hot water from an electric water heater)	822.3	—	—
Dishwasher (including hot water from an electric water heater), Energy Star	632.9	—	—
Espresso maker	360.0	—	—
Microwave oven	1500.0	—	—
Popcorn maker	1400.0	—	—
Range (cooktop/oven combination unit)	—	—	—
Self-cleaning oven	—	—	—
Stand mixer	100.0	—	—
Standard oven (non-self-cleaning)	—	—	—
Toaster	1100.0	—	—
Toaster oven	1200.0	—	—
<b>Laundry equipment</b>			
Clothes iron	1100.0	—	—
Clothes dryer, compact (120-volt)	—	—	—
Clothes dryer, compact (240-volt)	—	—	—
Clothes dryer, standard	—	—	—
Clothes washer (excluding water heating energy use)	—	—	—
Clothes washer (excluding water heating energy use), Energy Star	—	—	—
Clothes washer (including water heating energy use)	—	—	—
Clothes washer (including water heating energy use), Energy Star	—	—	—
Clothes washer and dryer	—	—	—
Clothes washer and dryer, Energy Star	—	—	—
<b>Miscellaneous plug loads</b>			
Aquarium	630.0	—	—
Battery charger (AA batteries)	2.9	—	1.0
Digital camera	1.8	—	0.3
Electric blanket	100.0	—	—
Handheld vacuum cleaner	3.0	—	—
iPad 2	13.2	—	—
Night light	2.4	—	0.6
Power tool (cordless)	33.7	—	4.2
Vacuum cleaner	650.0	—	—
Water heater, 50-gallon heat pump	—	—	—

Water heater, 50-gallon high-efficiency	—	—	—
Water heater, 50-gallon standard-efficiency	—	—	—
<b>Personal grooming tools</b>			
Curling iron	90.0	—	—
Hair dryer	1538.0	—	—
Shaver	1.4	—	1.2
Toothbrush	3.8	—	1.6
<b>Refrigeration and freezers</b>			
Chest freezer	46.5	—	—
Chest freezer, Energy Star	40.9	—	—
Compact bottom-mounted freezer (automatic defrost)	47.8	—	—
Compact bottom-mounted freezer (automatic defrost), Energy Star	36.8	—	—
Compact chest freezer	49.1	—	—
Compact chest freezer, Energy Star	37.8	—	—
Compact refrigerator or compact refrigerator-freezer (manual defrost)	39.0	—	—
Compact refrigerator or compact refrigerator-freezer (manual defrost), Energy Star	30.0	—	—
Compact refrigerator-freezer (partial automatic defrost)	48.6	—	—
Compact refrigerator-freezer (partial automatic defrost), Energy Star	37.4	—	—
Compact top-mounted freezer or refrigerator only (automatic defrost)	46.3	—	—
Compact top-mounted freezer or refrigerator only (automatic defrost), Energy Star	35.6	—	—
Compact upright freezer (auto defrost)	79.3	—	—
Compact upright freezer (auto defrost), Energy Star	61.1	—	—
Compact upright freezer (manual defrost)	58.4	—	—
Compact upright freezer (manual defrost), Energy Star	44.9	—	—
Refrigerator, bottom-mounted freezer (automatic defrost)	66.7	—	—
Refrigerator, bottom-mounted freezer (automatic defrost), Energy Star	52.0	—	—
Refrigerator, bottom-mounted freezer and through-door ice (automatic defrost)	77.1	—	—
Refrigerator, bottom-mounted freezer and through-door ice (automatic defrost), Energy Star	60.1	—	—
Refrigerator with or without a top-mounted freezer (automatic defrost)	61.9	—	—
Refrigerator with or without a top-mounted freezer (automatic defrost), Energy Star	48.3	—	—
Refrigerator-freezer or refrigerator only (manual or partially automatic defrost)	55.7	—	—
Refrigerator-freezer or refrigerator only (manual or partially automatic defrost), Energy Star	43.5	—	—
Side-by-side refrigerator/freezer (automatic defrost)	73.2	—	—
Side-by-side refrigerator/freezer (automatic defrost), Energy Star	57.1	—	—
Side-by-side refrigerator/freezer with through-door ice (automatic defrost)	77.7	—	—
Side-by-side refrigerator/freezer with through-door ice (automatic defrost), Energy Star	60.6	—	—
Upright freezer (automatic defrost)	75.0	—	—
Upright freezer (automatic defrost), Energy Star	66.0	—	—
Upright freezer (manual defrost)	52.4	—	—
Upright freezer (manual defrost), Energy Star	46.2	—	—
<b>Space conditioning</b>			
Air purifier	100.0	—	1.0
Air purifier, Energy Star	30.0	—	0.6
Dehumidifier, room	350.0	—	—
Dehumidifier, whole-house	141.2	—	—
Dehumidifier, whole-house, Energy Star	110.6	—	—
Humidifier	75.0	—	—
Portable fan	100.0	—	—
Room air conditioner	1000.0	—	—
Space heater	1000.0	—	3.0
<b>Telephony</b>			
Answering machine	1.0	—	—

Cordless phone	3.0	—	—
iPhone 3G	—	—	—
iPhone 4	—	—	—
Mobile phone	4.0	—	—
<b>Television peripherals</b>			
Apple TV streaming box	3.0	1.0	—
Blu-Ray player	17.0	—	0.4
Blu-Ray player, Energy Star	12.8	—	0.4
DVD player	11.5	—	1.8
DVD player, Energy Star	5.9	—	0.6
HD DVR set-top box	32.0	#####	—
HD receiver set-top box	20.0	#####	—
Satellite dish	15.0	—	—
Standard DVR set-top box	26.0	#####	—
Standard receiver set-top box	16.0	#####	—
VCR	11.0	—	—
<b>Televisions</b>			
CRT, 10-inch	55.0	—	1.0
CRT, 25-inch	95.0	—	2.0
CRT, 35-inch	162.0	—	2.0
CRT, 45-inch	298.0	—	4.0
CRT, 55-inch	400.0	—	8.0
CRT, >60-inch	474.0	—	#####
LCD, 35-inch	65.0	—	0.4
LCD, 45-inch	110.0	—	0.4
LCD, 55-inch	165.0	—	0.4
LCD, >60-inch	190.0	—	0.4
LED, 45-inch	127.0	—	—
LED, 55-inch	155.0	—	—
Plasma, 35-inch	65.0	—	0.1
Plasma, 45-inch	110.0	—	0.1
Plasma, 55-inch	165.0	—	0.1
Plasma, >60-inch	190.0	—	0.1
Rear-projection	200.0	—	—
<b>Video game consoles</b>			
Microsoft Xbox (2001), turned off when not in use	64.0	#####	1.7
Microsoft Xbox (2001), left on when not in use	64.0	#####	1.7
Microsoft Xbox 360 (2007), turned off when not in use	118.8	#####	3.1
Microsoft Xbox 360 (2007), left on when not in use	118.8	#####	3.1
Microsoft Xbox 360 (2010), turned off when not in use	87.9	—	—
Microsoft Xbox 360 (2010), left on when not in use	87.9	—	—
Nintendo 64 (1996), turned off when not in use	7.3	7.8	1.1
Nintendo 64 (1996), left on when not in use	7.3	7.8	1.1
Nintendo GameCube (2000), turned off when not in use	23.0	#####	0.7
Nintendo GameCube (2000), left on when not in use	23.0	#####	0.7
Nintendo Wii (2006), turned off when not in use	16.4	#####	1.9
Nintendo Wii (2006), left on when not in use	16.4	#####	1.9
Nintendo Wii (2010), turned off when not in use	13.7	—	—
Nintendo Wii (2010), left on when not in use	13.7	—	—
Sony PlayStation (1994), turned off when not in use	8.0	6.5	1.4
Sony PlayStation (1994), left on when not in use	8.0	6.5	1.4

Sony PlayStation 2 (2000), turned off when not in use	24.2	#####	1.7
Sony PlayStation 2 (2000), left on when not in use	24.2	#####	1.7
Sony PlayStation 3 (2007), turned off when not in use	150.1	#####	1.1
Sony PlayStation 3 (2007), left on when not in use	150.1	#####	1.1
Sony PlayStation 3 (2010), turned off when not in use	84.8	—	—
Sony PlayStation 3 (2010), left on when not in use	84.8	—	—
Super Nintendo (1991), turned off when not in use	7.3	5.4	1.5
Super Nintendo (1991), left on when not in use	7.3	5.4	1.5

Notes: — = no data; CRT = cathode ray tube; DVR = digital video recorder; kWh = kilowatt-hour; LCD = liquid crystal display; LED = light-emitting diode; W = watt.